

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference ACA6127W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 25483	International filing date (day/month/year) 15/09/2000	(Earliest) Priority Date (day/month/year) 24/09/1999
Applicant AKZO NOBEL N.V. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US 00/25483

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E21B37/06 E21B43/25

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 669 544 A (NIMERICK KENNETH H) 2 June 1987 (1987-06-02) column 6, line 3 - line 44 column 7, line 33 - line 40; tables III, IV ---	1-4, 6-8, 14, 15, 19-21, 27
P, Y	US 5 977 032 A (CHAN ALBERT F) 2 November 1999 (1999-11-02) column 2, line 21 - line 56 column 8, line 45 - line 64 ---	1-4, 6-8, 14, 15, 19-21, 27
Y	US 4 120 356 A (MEISTER JOHN J) 17 October 1978 (1978-10-17) column 2, line 26 - line 44 column 3, line 3 - line 9 column 4, line 50 - line 64; examples IV, V --- -/--	1, 6, 7, 19

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

1 December 2000

Date of mailing of the international search report

08/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Boulon, A

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US 00/25483

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 323 593 A (W.C.FOSHEE) 6 June 1967 (1967-06-06) column 2, line 45 -column 3, line 20 ----	1,6,7
A	US 5 830 831 A (CHAN ALBERT F ET AL) 3 November 1998 (1998-11-03) column 3, line 29 - line 35 column 4, line 62 -column 5, line 54 column 7, line 54 -column 8, line 2 -----	1-3

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal Application No

PCT/US 00/25483

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4669544 A	02-06-1987	CA 1272458 A	07-08-1990
US 5977032 A	02-11-1999	WO 0019062 A US 6110885 A	06-04-2000 29-08-2000
US 4120356 A	17-10-1978	US 4148736 A	10-04-1979
US 3323593 A	06-06-1967	NONE	
US 5830831 A	03-11-1998	US 6090754 A	18-07-2000

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: RALPH J. MANCINI
AKZO NOBEL INC.
INTELLECTUAL PROPERTY DEPARTMENT
7 LIVINGSTONE AVENUE
DOBBS FERRY NY 10522-3408

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of Mailing
(day/month/year)

01 AUG 2001

Applicant's or agent's file reference

ACA6127WO

REPLY DUE

within TWO months
from the above date of mailing

International application No.

PCT/US00/25483

International filing date (day/month/year)

15 SEPTEMBER 2000

Priority date (day/month/year)

24 SEPTEMBER 1999

International Patent Classification (IPC) or both national classification and IPC

IPC(7): E21B 43/16, 21/00; C09k 3/00 and US Cl.: 166/305.1, 307, 311; 507/211, 240, 261

Applicant

AKZO NOBEL N.V.

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).~~

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 *bis*.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 24 JANUARY 2002

Name and mailing address of the IPEA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

B. Hauch
PHILIP C. TUCKER

Telephone No. (703) 308-0651

WRITTEN OPINION

International application No.

PCT/US00/25483

I. Basis of the opinion

1. With regard to the elements of the international application:*

☒ the international application as originally filed

☒ the description:

pages 1-10, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of

☒ the claims:

pages 11-18, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of

☒ the drawings:

pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of

☒ the sequence listing part of the description:

pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
☒ the claims, Nos. NONE
☒ the drawings, sheets/fig NONE

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".

WRITTEN OPINION

International application No.

PCT/US00/25483

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Inventive Step (IS)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Industrial Applicability (IA)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO

2. citations and explanations

Claims 1, 6, 7, 14, 15, 17-21 and 25-29 lack novelty under PCT Article 33(2) as being anticipated by Urfer et al. (US 5,627,144).

Urfer teaches a composition which is used to treat a wellbore, which comprises a cationic surfactant esterquat, an alkyl polyglycoside, and a fatty alcohol, which is a nonionic surfactant (see example 7). The composition of example 1 of Urfer anticipates the composition claims of the present invention, since an intended use does not distinguish over the prior art. the present invention thus lacks novelty over the teachings of Urfer.

Claims 1-9, 11, 12, 14, 15, 17, 19-22 and 24-28 lack novelty under PCT Article 33(2) as being anticipated by Frazier Jr. et al. (US 5,246,072).

Frazier teaches a composition which is used to treat wellbores, which comprises a cationic surfactant, and a nonionic surfactant within the scope of the present invention (see column 3, line 4 - column 4, line 33). the present invention thus lacks novelty over the teachings of Frazier.

Claims 10, 13, 16 and 23 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the composition comprising the specified alcohol or glycol solvents, the combination of quaternary ammonium, glycoside and ethoxylated alcohol, or the use of a quaternary compound comprising a hydrogen substituent. the invention finds use in the oil field industry as specified by the disclosure.

----- NEW CITATIONS -----

US 5,246,072 A (FRAZIER JR. et al) 21 September 1993, see column 3, line 4 - column 4, line 33.

US 5,626,144 A (URFER et al) 06 May 1997, see examples 7 and 1.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 7, 10, 16, 20 and 23 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims are indefinite for the following reason(s): Claim 7 teaches definitions for R₂, then teaches that such is preferably methyl, ethyl or propyl. It is not clear if the claim is limited to the preferred species or encompasses all of the cited species. Claims 10 and 23 depend from claims 8 and 19, respectively, which do not teach that the substituent R₃ may be hydrogen. Claim 16 uses the terms "and the like" and "such as", which renders the claim indefinite, since the scope of such species are not disclosed. Claim 20 teaches that R may comprise 8-30 carbon atoms and z is an interger of 1-30, which is outside the scope of 8-18 carbon atoms, and 2-12 ethoxy units taught by parent claim 19.

WRITTEN OPINION

International application No.

PCT/US00/25483

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

V. 1. REASONED STATEMENTS:

The opinion as to Novelty was positive (YES) with respect to claims 10, 13, 16, 23.

The opinion as to Novelty was negative (NO) with respect to claims 1-9, 11, 12, 14, 15, 17-22, 24-29 .

The opinion as to Inventive Step was positive (YES) with respect to claims 10, 13, 16, 23 .

The opinion as to Inventive Step was negative (NO) with respect to claims 1-9, 11, 12, 14, 15, 17-22, 24-29 .

The opinion as to Industrial Applicability was positive (YES) with respect to claims 1-29 .

The opinion as to Industrial Applicability was negative (NO) with respect to claims NONE .

PCT

REGD 11 DEC 2001

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ACA6127WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/25483	International filing date (day/month/year) 15 SEPTEMBER 2000	Priority date (day/month/year) 24 SEPTEMBER 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): E21B 43/16, 21/00; C09k 3/00 and US Cl.: 166/305.1, 307, 311; 507/211, 240, 261		
Applicant AKZO NOBEL N.V.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets.
☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
These annexes consist of a total of — sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 05 APRIL 2001	Date of completion of this report 29 OCTOBER 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer PHILIP C. TUCKER <i>Philip C. Tucker</i> Telephone No. (703) 308-0651

I. Basis of the report**1. With regard to the elements of the international application: ***☒ the international application as originally filed☒ the description:

pages 1-10, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

☒ the claims:

pages 11-18, as originally filed
pages NONE, as amended (together with any statement) under Article 19
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

☒ the drawings:

pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

☒ the sequence listing part of the description:

pages NONE, as originally filed
pages NONE, filed with the demand
pages NONE, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.**4. ☒ The amendments have resulted in the cancellation of:**☒ the description, pages NONE☒ the claims, Nos. NONE☒ the drawings, sheets/fig NONE**5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).****

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

**Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/25483

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Inventive Step (IS)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO
Industrial Applicability (IA)	Claims	<u>(Please See supplemental sheet)</u>	YES
	Claims	<u>(Please See supplemental sheet)</u>	NO

2. citations and explanations (Rule 70.7)

Claims 1, 6, 7, 14, 15, 17-21 and 25-29 lack novelty under PCT Article 33(2) as being anticipated by Urfer et al. (US 5,627,144).

Urfer teaches a composition which is used to treat a wellbore, which comprises a cationic surfactant esterquat, an alkyl polyglycoside, and a fatty alcohol, which is a nonionic surfactant (see example 7). The composition of example 1 of Urfer anticipates the composition claims of the present invention, since an intended use does not distinguish over the prior art. the present invention thus lacks novelty over the teachings of Urfer.

Claims 1-9, 11, 12, 14, 15, 17, 19-22 and 24-28 lack novelty under PCT Article 33(2) as being anticipated by Frazier Jr. et al. (US 5,246,072).

Frazier teaches a composition which is used to treat wellbores, which comprises a cationic surfactant, and a nonionic surfactant within the scope of the present invention (see column 3, line 4 - column 4, line 33). The present invention thus lacks novelty over the teachings of Frazier.

Claims 10, 13, 16 and 23 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the composition comprising the specified alcohol or glycol solvents, the combination of quaternary ammonium, glycoside and ethoxylated alcohol, or the use of a quaternary compound comprising a hydrogen substituent. The invention finds use in the oil field industry as specified by the disclosure.

NEW CITATIONS

US 5,246,072 A (FRAZIER JR. et al) 21 September 1993, see column 3, line 4 - column 4, line 33.

US 5,627,144 A (URFER et al) 06 May 1997, see examples 7 and 1.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 7, 10, 16, 20 and 23 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because the claims are indefinite for the following reason(s): Claim 7 teaches definitions for R₂, then teaches that such is preferably methyl, ethyl or propyl. It is not clear if the claim is limited to the preferred species or encompasses all of the cited species. Claims 10 and 23 depend from claims 8 and 19, respectively, which do not teach that the substituent R₃ may be hydrogen. Claim 16 uses the terms "and the like" and "such as", which renders the claim indefinite, since the scope of such species are not disclosed. Claim 20 teaches that R may comprise 8-30 carbon atoms and z is an interger of 1-30, which is outside the scope of 8-18 carbon atoms, and 2-12 ethoxy units taught by parent claim 19.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/25483

Supplemental B x

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

V. 1. REASONED STATEMENTS:

The report as to Novelty was positive (YES) with respect to claims 10, 13, 16, 23.

The report as to Novelty was negative (NO) with respect to claims 1-9, 11, 12, 14, 15, 17-22, 24-29 .

The report as to Inventive Step was positive (YES) with respect to claims 10, 13, 16, 23 .

The report as to Inventive Step was negative (NO) with respect to claims 1-9, 11, 12, 14, 15, 17-22, 24-29 .

The report as to Industrial Applicability was positive (YES) with respect to claims 1-29 .

The report as to Industrial Applicability was negative (NO) with respect to claims NONE .